

1. A method of monitoring item shuffling in a post-scan area of a self-service checkout terminal, with the post-scan area including a post-scan surface, comprising the steps of:

detecting removal of a first number of items from the post-scan surface and generating a first weight decrease value in response thereto which corresponds to the weight of the first number of items;

detecting placement of a second number of items onto the post-scan surface and generating a first weight increase value in response thereto which corresponds to the weight of the second number of items; and

comparing the first weight decrease value to the first weight increase value and generating a first match control signal in response thereto if the first weight decrease value matches the first weight increase value.

2. The method of claim 1, further comprising the step of:

generating an improper-use control signal if the first weight increase value (i) does not match the first weight decrease value, and (ii) is greater than the first weight decrease value.

3. The method of claim 2, further comprising the steps of:

updating an electronic log value in response to generation of the improper-use control signal; and

comparing the electronic log value to a log threshold and generating an intervention signal in response thereto if the electronic log value has a predetermined relationship to the log threshold.

4. The method of claim 1, further comprising the steps of:

detecting placement of a third number of items onto the post-scan surface and generating a second weight increase value in response thereto which corresponds to the weight of the third number of items; and

comparing the first weight decrease value to a sum of the first weight increase value and the second weight increase value and generating a second match control signal in response thereto if the first weight decrease value matches the sum of the first weight increase value and the second weight increase value.

5. The method of claim 4, further comprising the steps of:

generating an improper-use control signal if the first weight decrease value does not match the sum of the first weight increase value and the second weight increase value.

6. The method of claim 5, further comprising the steps of:

updating an electronic log value in response to generation of the improper-use control signal; and

comparing the electronic log value to a log threshold and generating an intervention signal in response thereto if the electronic log value has a predetermined relationship to the log threshold.

7. The method of claim 4, further comprising the steps of:

generating an item-displaced control signal if the first weight increase value (i) does not match the first weight decrease value, and (ii) is less than the first weight decrease value;

generating an item-entered control signal if the user enters a subsequent item into the self-service checkout terminal; and

generating an improper-use control signal if the item-entered control signal is generated (i) subsequent to generation of the item-displaced control signal, and (ii) prior to generation of the second match control signal.

8. The method of claim 7, further comprising the steps of:

updating an electronic log value in response to generation of the improper-use control signal; and

comparing the electronic log value to a log threshold and generating an intervention signal in response thereto if the electronic log value has a predetermined relationship to the log threshold.

9. The method of claim 1, further comprising the steps of:

detecting removal of a third number of items from the post-scan surface and generating a second weight decrease value in response thereto which corresponds to the weight of the third number of items; and

comparing the sum of the first weight decrease value and the second weight decrease value to the first weight increase value and generating a second match control signal in response thereto if the sum of the first weight decrease value and the second weight decrease value matches the first weight increase value.

10. The method of claim 1, wherein:

the post-scan surface includes (i) a post-scan shelf, and (ii) a bagwell having a grocery container positioned therein, a weight scale is positioned so as to detect weight of items positioned both on the post-scan shelf and in the grocery container,

the removal detecting step includes the step of detecting removal of the first number of items from the post-scan shelf with the weight scale, and

the placement detecting step includes the step of detecting placement of the second number of items into the grocery container with the weight scale.

11. The method of claim 1, wherein:

a weight scale is positioned so as to detect weight of items positioned on the post-scan surface,

the removal detecting step includes the step of detecting removal of the first number of items from the post-scan surface with the weight scale, and

the placement detecting step includes the step of detecting placement of the second number of items onto the post-scan surface with the weight scale.

12. A method of monitoring item shuffling in a post-scan area of a self-service checkout terminal having (i) a post-scan shelf, (ii) a bagwell with a grocery container positioned therein, and (iii) a weight scale positioned so as to detect weight of items positioned both on the post-scan shelf and in the grocery container, comprising the steps of:

detecting removal of a first number of items from the post-scan shelf with the weight scale and generating a first weight decrease value in response thereto which corresponds to the weight of the first number of items;

detecting placement of a second number of items into the grocery container with the weight scale and generating a first weight increase value in response thereto which corresponds to the weight of the second number of items; and

comparing the first weight decrease value to the first weight increase value and generating a first match control signal in response thereto if the first weight decrease value matches the first weight increase value.

13. The method of claim 12, further comprising the step of:

generating an improper-use control signal if the first weight increase value (i) does not match the first weight decrease value, and (ii) is greater than the first weight decrease value.

14. The method of claim 13, further comprising the steps of:

updating an electronic log value in response to generation of the improper-use control signal; and

comparing the electronic log value to a log threshold and generating an intervention signal in response thereto if the

electronic log value has a predetermined relationship to the log threshold.

15. The method of claim 12, further comprising the steps of:

detecting placement of a third number of items into the grocery container and generating a second weight increase value in response thereto which corresponds to the weight of the third number of items; and

comparing the first weight decrease value to a sum of the first weight increase value and the second weight increase value and generating a second match control signal in response thereto if the first weight decrease value matches the sum of the first weight increase value and the second weight increase value.

16. The method of claim 15, further comprising the steps of:

generating an improper-use control signal if the first weight decrease value does not match the sum of the first weight increase value and the second weight increase value.

17. The method of claim 16, further comprising the steps of:

updating an electronic log value in response to generation of the improper-use control signal; and

comparing the electronic log value to a log threshold and generating an intervention signal in response thereto if the electronic log value has a predetermined relationship to the log threshold.

18. The method of claim 15, further comprising the steps of:

generating an item-displaced control signal if the first weight increase value (i) does not match the first weight decrease value, and (ii) is less than the first weight decrease value;

generating an item-entered control signal if the user enters a subsequent item into the self-service checkout terminal; and

generating an improper-use control signal if the item-entered control signal is generated (i) subsequent to generation of the item-displaced control signal, and (ii) prior to generation of the second match control signal.

19. The method of claim 18, further comprising the steps of:

updating an electronic log value in response to generation of the improper-use control signal; and

comparing the electronic log value to a log threshold and generating an intervention signal in response thereto if the



electronic log value has a predetermined relationship to the log threshold.

20. The method of claim 12, further comprising the steps of:

detecting removal of a third number of items from the post-scan shelf and generating a second weight decrease value in response thereto which corresponds to the weight of the third number of items; and

comparing the sum of the first weight decrease value and the second weight decrease value to the first weight increase value and generating a second match control signal in response thereto if the sum of the first weight decrease value and the second weight decrease value matches the first weight increase value.

21. A method of monitoring item movement in a post-scan area of a self-service checkout terminal, comprising the steps of:

detecting and recording a weight decrease resulting from removal of one or more items from the post-scan area of the self-service checkout terminal;

detecting a weight increase resulting from placement of one or more items in the post-scan area of the self-service checkout terminal; and

generating a match signal if the weight increase matches

the weight decrease.

22. The method of claim 21, further comprising the step  
of:

generating an improper-use signal if the weight increase  
exceeds the weight decrease.

23. The method of claim 22, further comprising the steps  
of:

updating an electronic log if the improper-use signal is  
generated; and  
generating an intervention signal if the updated log satisfies  
a threshold condition.

24. The method of claim 21, further comprising the steps  
of:

detecting a further weight increase resulting from  
placement of one or more additional items in the post-scan  
area; and

generating a match signal if the total of weight  
increases matches the weight decrease.

25. The method of claim 24, further comprising the steps  
of:

generating an improper-use signal if the total of weight increases does not match the weight decrease.

26. The method of claim 25, comprising the further steps of:

updating an electronic log if the improper-use control signal is generated; and

generating an intervention signal if the updated log satisfies a threshold condition.

27. The method of claim 24, comprising the further step of:

generating an improper-use signal if a subsequent item is entered into the terminal before the weight of all removed items is restored to the post-scan area.

28. The method of claim 27, comprising the further steps of:

updating an electronic log in response to generation of the improper-use signal; and

generating an intervention signal if the updated log satisfies a threshold condition.

29. The method of claim 21, comprising the further steps

of:

detecting and recording a further weight decrease  
resulting from removal of one or more additional items from  
the post-scan area; and

generating a match signal if the total weight increases  
match the total weight decreases.

30. The method of claim 21, wherein:

the post-scan area includes a bagwell having a grocery  
container positioned therein,

a weight scale is positioned so as to detect weight of  
items in the grocery container,

removal of items from the post-scan area is detected with  
the weight scale, and

placement of items into the post-scan area is detected  
with the weight scale.

31. The method of claim 21, in which:

the manner in which a user handles items during operation  
of the self-service checkout terminal is monitored with a  
video camera.

32. The method of claim 21, in which:

an instructional message is communicated via a display

monitor if the detected weight increase does not match the recorded weight decrease.

33. The method of claim 21, in which:

an instructional message is communicated via a voice generating device if the detected weight increase does not match the recorded weight decrease.

34. The method of claim 21, in which:

an instructional message is communicated via an audible tone generating device if the detected weight increase does not match the recorded weight decrease.

35. A method of monitoring item movement in a post-scan area of a self-service checkout terminal, comprising the steps of:

detecting and recording any weight decrease resulting from removal of one or more items from the post-scan area of the self-service checkout terminal;

detecting any weight increase resulting from placement of one or more items in the post-scan area of the self-service checkout terminal; and

generating a match signal if the weight increase matches the weight decrease.

36. The method of claim 35, in which:

a processor concludes that a user has permanently removed a removed item from the post-scan area if another item is entered before the match signal is generated.

37. The method of claim 35, including the further step of:

maintaining and updating a scale history table to track the usage of a weight scale in the post-scan area for detecting the weight decreases and increases.

38. The method of claim 37, in which:

a processor concludes that no unaccounted for item or items have been placed in the post-scan area based on the content of the scale history table.

39. A method of monitoring item movement in a post-scan area of a self-service checkout terminal, comprising the steps of:

detecting a weight increase resulting from placement of one or more items in the post-scan area of the self-service checkout terminal;

determining if the weight increase corresponds to an expected weight of a previously entered item or to a previously detected and recorded weight decrease; and

if the weight increase does not correspond to the expected weight of the previously entered item or to the previously detected and recorded weight decrease, communicating an instructional message instructing a user to remove the item or items from the post-scan area and to enter the item or items for purchase.

40. The method of claim 39, in which:

the message is communicated via a display monitor and a voice generating device.

41. The method of claim 39, including the further step of:

communicating initialization instructions to a user via a display monitor.

42. The method of claim 41, in which:

the initialization instructions instruct the user to touch a particular area of the display monitor in order to select a desired method of payment for entered items.

43. The method of claim 41, in which:

the initialization instructions instruct the user to push a particular button on a data input device in order to select

a desired method of payment for entered items.

44. The method of claim 41, in which:

the initialization instructions instruct the user to identify himself or herself by inserting a card into a card reader.

45. (Cancelled)

46. A method of monitoring item movement in a post-scan area of a self-service checkout terminal, comprising the steps of:

detecting removal of a first item from the post-scan area of the self-service checkout terminal by detecting a weight decrease caused by the removal of the first item, and also recording the weight decrease caused by the removal of the first item;

detecting placement of a second item in the post-scan area of the self-service checkout terminal by detecting a weight increase caused by the placement of the second item;  
and

generating a match signal if a match between the weight increase and the recorded weight decrease indicates that the second item is the first item.



47. A method comprising the steps of:

providing a self-service checkout terminal having a scanner that enters items for purchase and a scale that weighs the items on a post-scan surface;

providing a security system that differentiates between entered and non-entered items placed on the post-scan surface;

wherein said security system employs the scale to detect removal of one of the items from the post-scan surface by detecting a weight decrease caused by the removal of the one item from the post-scan surface, said security system recording the weight decrease, said security system detecting replacement of the one item on the post-scan surface by recognizing a match between a weight increase and the recorded weight decrease.

48. The method of claim 47 including the further step of providing an automated teller machine to pay for the entered items placed on the post-scan surface.

49. The method of claim 47 including the further step of providing a cash acceptor to pay for the entered items placed on the post-scan surface.

50. The method of claim 49 including the further step of providing a currency dispenser to return change when a user inserts currency into the cash acceptor.

51. The method of claim 50 including the further step of providing a coin dispenser to return change when the user inserts currency into the cash acceptor.

52. A method comprising the steps of:

providing a self-service checkout terminal having a scanner that enters items for purchase and a scale that weighs the items on a post-scan surface;

providing a security system that employs the scale to detect removal of one of the items from the post-scan surface by detecting a weight decrease caused by the removal of the one item from the post-scan surface, said security system recording the weight decrease, and replacement of the one item on the post-scan surface by detecting a weight increase caused by the replacement of the one item on the post-scan surface;

wherein said security system generates a match signal before another item of the items is entered and when a match between the weight increase and the recorded weight decrease indicates that the one item removed from the post-scan surface has been placed back on the post-scan surface.

53. The method of claim 52 in which the security system concludes that a user has permanently removed the one item from the post-scan surface if the other item is entered before the match signal is generated.

54. The method of claim 52 in which the security system concludes whether any unaccounted for item or items have been placed on the post-scan surface based on a recorded history of readings of the scale.

55. A method comprising the steps of:

providing a self-service checkout terminal having a scanner that enters items for purchase and a scale that weighs the items on a post-scan surface;

providing a security system that employs the scale to detect removal of one of the items from the post-scan surface by detecting a weight decrease caused by the removal of the one item from the post-scan surface, said security system recording the weight decrease, and replacement of the one item on the post-scan surface by detecting a weight increase caused by placement of another item on the post-scan surface;

wherein said security system generates an improper-use signal if a mismatch between the weight increase and the

recorded weight decrease indicates that the one item removed from the post-scan surface has been replaced by the other item having a different weight.

56. A method comprising the steps of:

providing a self-service checkout terminal having a scanner that enters items for purchase and a scale that weighs the items on a post-scan surface;

providing a security system that employs the scale to detect removal of one of the items from the post-scan surface by detecting a weight decrease caused by the removal of the one item from the post-scan surface, said security system recording the weight decrease, and replacement of the one item on the post-scan surface by detecting a weight increase caused by the placement of another item on the post-scan surface;

wherein said security system generates an improper-use signal if a mismatch between the weight increase the recorded weight decrease indicates that the one item removed from the post-scan surface has been replaced by the other item having a greater weight.

57. The method of claim 56 in which, if the one item removed from the post-scan surface is replaced by the other item

having a greater weight, the security system instructs a user to remove the other item from the post-scan surface.

58. A method comprising the steps of:

providing a self-service checkout terminal having a scanner that enters items for purchase and a scale that weighs the items on a post-scan surface;

providing a security system that employs the scale to detect removal of one of the items from the post-scan surface by detecting a weight decrease caused by the removal of the one item from the post-scan surface, said security system recording the weight decrease, and replacement of another item on the post-scan surface by detecting a weight increase caused by the placement of the other item on the post-scan surface;

wherein said security system generates an improper-use signal if a mismatch between the weight increase and the recorded weight decrease indicates that the one item removed from the post-scan surface has been replaced by the other item having a lesser weight.

59. A method comprising the steps of:

providing a self-service checkout terminal having a scanner that enters items for purchase and a scale that weighs the items on a post-scan surface;

providing a security system that employs the scale to detect placement of one or more unentered items on the post-scan surface of the self-service checkout terminal by detecting a weight increase resulting from placement of one or more items in the post-scan surface, determining if the weight increase corresponds to an expected weight of a previously entered item or to a previously detected and recorded weight decrease and identifying the item or items as unentered if the weight increase caused by the placement of the one or more items does not correspond to the expected weight of the previously entered item or the previously entered items or to the previously detected and recorded weight decrease or the previously detected and recorded weight decreases;

wherein said security system communicates an instructional message to a user if the one or more unentered items are placed on the post-scan surface.